

Solicitation, Offer and Award		1. THIS CONTRACT IS A RATED ORDER UNDER DPAS (15 CFR 350)		RATING		PAGE 1		OF PAGES 43	
2. CONTRACT NO.		3. SOLICITATION NO. DTFH61-97-R-00064		4. TYPE OF SOLICITATION <input type="checkbox"/> SEALED BID (IFB) <input checked="" type="checkbox"/> NEGOTIATED (RFP)		5. DATE ISSUED May 15, 1997		6. REQUISITION/PURCHASE NO. 42-20-7021	
7. ISSUED BY Federal Highway Administration Office of Acquisition Management 400 Seventh Street, SW, Room 4410 Washington, DC 20590				8. ADDRESS OFFER TO (If other than Item 7)					

NOTE: In sealed bid solicitation "offer" and "offeror" mean "bid" and "bidder".

SOLICITATION

9. Sealed offers in original and _6_ copies for furnishing the supplies or services in the Schedule will be received at the place specified in Item 8, or if handcarried, in the depository located in 400 7th St., S.W., Room 4410, until 4:15pm local time **June 30, 1997**.

CAUTION - LATE Submission, Modifications, and Withdrawals: See Section L, Provision No. 52.214-7 or 52.215-10. All offers are subject to all terms and conditions contained in this solicitation.

10. FOR INFORMATION CALL:		A. NAME Lise S. Lyles		B. TELEPHONE NO. (Include area code) (NO COLLECT CALLS) (202) 366-4229	
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OFFER (Must be fully completed by offeror)

NOTE: Item 12 does not apply if the solicitation includes the provisions at 52.214-16, Minimum Bid Acceptance Period.

12. In compliance with the above, the undersigned agrees, if this offer is accepted within _____ calendar days (60 calendar days unless a different period is inserted by the offeror) from the date for receipt of offers specified above, to furnish any or all items upon which prices are offered at the price set opposite each item, delivered at the designated point(s), within the time specified in the schedule.

13. DISCOUNT FOR PROMPT PAYMENT (See Section I, Clause No. 52.232-8)		10 Calendar Days %	20 Calendar Days %	30 Calendar Days %	Calendar Days %
14. ACKNOWLEDGMENT OF AMENDMENTS (The offeror acknowledges receipt of amendments to the SOLICITATION for offerors and related documents numbered and dated:.		AMENDMENT NO.	DATE	AMENDMENT NO.	DATE
15A. NAME AND ADDRESS OF OFFEROR	CODE _____ FACILITY _____		16. NAME AND TITLE OF PERSON AUTHORIZED TO SIGN OFFER (Type or print)		
15B. TELEPHONE NO. (Include area code)	15C. CHECK IF REMITTANCE ADDRESS IS <input type="checkbox"/> DIFFERENT FROM ABOVE - ENTER SUCH ADDRESS IN SCHEDULE		17. SIGNATURE		18. OFFER DATE

AWARD (To be completed by Government)

19. ACCEPTED AS TO ITEMS NUMBERED		20. AMOUNT		21. ACCOUNTING AND APPROPRIATION	
22. AUTHORITY FOR USING OTHER THAN FULL AND OPEN COMPETITION: <input type="checkbox"/> 10 U.S.C. 2304(c)() <input type="checkbox"/> 41 U.S.C. 253(c)()				23. SUBMIT INVOICES TO ADDRESS SHOWN IN (4 copies unless otherwise specified)	
24. ADMINISTERED BY (If other than Item 7) CODE _____				25. PAYMENT WILL BE MADE BY CODE _____	
26. NAME OF CONTRACTING OFFICER (Type or print)				27. UNITED STATES OF AMERICA (Signature of Contracting Officer)	
				28. AWARD DATE	

IMPORTANT - Award will be made on this Form, or on Standard Form 26, or by other authorized official written notice.

P A R T I

SECTION B - SUPPLIES OR SERVICES AND PRICES/COSTS

1. The Contractor shall furnish all necessary facilities, materials, and personnel and shall perform all services necessary to conduct a study entitled, "Work Zone Appurtenances Tested to NCHRP 350."
2. The total estimated cost plus fixed fee for the performance of this contract is \$_____, which consists of the estimated cost of \$_____, and a fixed fee of \$_____.
3. All travel shall be reimbursed at cost in accordance with the Travel and Per Diem clause (reference Section G).

SECTION C - DESCRIPTION/SPECIFICATIONS/STATEMENT OF WORK

PROSPECTUS

A wide variety of roadside appurtenances are currently being used in construction work zones. These include portable concrete barriers, temporary sign supports and Type I, II and III barricades. Many of these appurtenances have never been crash tested or evaluated. Almost none of these appurtenances have been tested in accordance with the recommended procedures in National Cooperative Highway Research Program (NCHRP) Report No. 350. A testing program is necessary in order to ensure that the work zone appurtenances being used are safe for the traveling public.

Eleven States have contributed funds to State Planning and Research (SPR) Pooled Fund Study No. 2-188, "Crash Tested Safety Appurtenances for Work Zones." At a panel meeting in 1996, the representatives from the participating States voted on which appurtenances will be tested and established a Priority List (see Section J, Attachment No. 7). The pledged funding will only be sufficient to address the first ten items on this list.

STATEMENT OF WORK

CONTRACT OBJECTIVE

To design, test and develop work zone appurtenances for use by the States.

SCOPE

This requirement consists of conducting full-scale tests of work zone appurtenances, designing and redesigning these appurtenances as necessary to improve their performance, preparing detailed design drawings and storing test data on Bernouilli cartridges. The contractor shall also hold meetings of the State Representatives and reimburse them for their travel expenses. This contract will provide crash tested and evaluated work zone appurtenances for use by the States.

DELINEATION OF CONTRACTOR TASKS

In order to achieve the contract objectives, the Contractor shall, as a minimum, perform the following tasks.

Task A - Analysis and Design

1. In order to finalize the details of the work zone appurtenance designs to be tested, contact the State representatives directly by telephone and facsimile (Fax) transmissions. Wherever possible, specifications and computer-aided drafting and design (CAD) drawings of these appurtenances shall be obtained from the State representatives. Prepare a CAD drawing of each appurtenance and submit it to the Contracting Officer's Technical Representative (COTR) for approval for testing in Task B. These design coordination activities and the detailed designs recommended for testing shall be documented in the monthly reports. The following is a list of the design issues that must be addressed and resolved for each pertinent item shown in Table 1 (see Section J, Attachment No. 7).

Item 1-	Review the wind loading capacity of this Type III barricade to be sure that the selected design will not be blown over by passing trucks when it is installed on the shoulder of a freeway. Compare it with the barricade design that will be tested by the State of Texas to make sure that there will be no duplication of effort.
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- Item 2 - Review the wind loading capacity of the polyvinyl chloride (PVC) pipe barricade that was developed by the State of New Jersey. It may be necessary to use a sign blank made of fabric to reduce its weight.
- Item 3 - This skid-mounted sign support design was submitted by the State of Oregon. Compare it with the design that will be tested by the State of Texas to make sure that there will be no duplication of effort.
- Item 4 - Select the best Type II and the best Type III barricades from the available designs considering performance and cost.
- Item 5 - Evaluate the strength and rotation capacity of the I-beam connection of this portable concrete barrier (PCB).
- Item 6 - Prepare conceptual designs for a lateral stiffener for PCB joints and submit them to the COTR for approval. After a conceptual design has been selected, prepare a detailed design drawing of the lateral stiffener so that it can be fabricated for testing in Task B.
- Item 7 - Two tests of the Montana portable sign assembly will be conducted with cars under another contract at the Federal Outdoor Impact Laboratory (FOIL) in McLean, VA. The contractor will not be responsible for any effort associated with this item except to make sure there is no duplication of effort.
- Item 8 - Prepare rough sketches of conceptual designs of a transition section from a temporary New Jersey safety shape concrete barrier to the end of a New Jersey safety shape bridge rail. Furnish these rough sketches of conceptual designs to the COTR. After the COTR has selected one of these conceptual designs, prepare a detailed design drawing of the transition and submit it to the COTR for approval for testing in Task B.
- Item 9 - The Oregon F-shape PCB is pinned to the roadway in order to minimize the lateral deflection of the barrier. Review the Oregon design, taking into account the results of other recent tests of PCB designs and then recommend any design changes that should be made before it is crash tested in Task B.
- Item 10 - Make a literature search and/or a limited survey of existing portable sign support designs. Submit a recommended design to the COTR for approval for testing in Task B. It should be noted that the sign support design should be capable of accommodating three different mounting

heights of the sign panel. The Manual on Uniform Traffic Control Devices (MUTCD) (see Section J, Attachment No. 8) allows a minimum mounting height of 305 mm (1-ft).

2. Review all of the designs recommended for testing in Task B to determine whether or not the designs meet the requirements of the MUTCD (see Section J, Attachment No.8). After consultation with the COTR, submit to the COTR a work plan containing a revised test matrix for Task B for approval. Submit to the Contracting Officer (CO) one copy of the transmittal letter.
3. If necessary, redesign the tested work zone appurtenances. Recommend to the COTR any design changes that would improve the safety performance of these appurtenances without significantly affecting their construction and maintenance costs.
4. After the design changes are approved by the COTR, prepare Intergraph CAD drawings of the redesigned appurtenances to show the final design details.

Task B - Full-Scale Tests

1. Conduct up to thirteen full-scale tests in accordance with the following tentative test matrix:

TEST MATRIX

Test No.	NCHRP 350 Designation	Test Vehicle	Impact Velocity	Impact Angle	Test Article/ Impact Point
1.	3-71	820-kg Car	100 km/h	0-20 deg	Item 1 - Type III Barricade with 48-in sign mounted at 7-ft
2.	3-71	820-kg Car	100 km/h	0-20 deg	Item 2 - N.J. PVC Barricade with Signs
3.	3-71	820-kg Car	100 km/h	0-20 deg	Item 3 - Skid-mounted Sign Support, 48-in x 48-in wood, 7-ft mounting height.
4.	3-70	820-kg Car	35 km/h	0-20 deg	Item 3 - Skid-mounted Sign Support, 48-in x 48-in wood, 7-ft mounting height.
5.	3-71	820-kg Car	100 km/h	0-20 deg	Item 4 - Type II, L-channel Barricade

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6.	3-71	820-kg Car	100 km/h	0-20 deg	Item 4 - Type III, L-channel Barricade
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7.	3-11	2000-kg Pickup Truck	100 km/h	25 deg	Item 5 - New York I-beam, Connection for PCB, Pinned to ground at ends of Barrier
8 .	3-11	2000-kg Pickup Truck	100 km/h	25 deg	Item 6 - Lateral Stiffener for PCB Joints
9.	3-20	800-kg Car	100 km/h	20 deg	Item 8 - Transition from N.J. Temporary Barrier to N.J. Bridge End
10.	3-21	2000-kg Pickup Truck	100 km/h	25 deg	Item 8 - Transition from N.J. Temporary Barrier to N.J. Bridge End
11.	3-11	2000-kg Pickup Truck	100 km/h	25 deg	Item 9 - Oregon F-shape PCB Pinned to Roadway
12.	3-71	820-kg Car	100 km/h	0-20 deg	Item 10 - Portable Sign Support with 305 mm (1-ft) Mounting Height
13.	3-71	820-kg Car	100 km/h	0-20 deg	Item 10 -Portable Sign Support, with 1.5 m (5-ft) Mounting Height

TECHNICAL REQUIREMENTS

- A. Test procedures, test instrumentation, and the report contents shall be in accordance with the guidelines in the NCHRP Report No. 350 (for additional evaluation factors, see Section J, Attachment No. 9). These procedures may be modified by the Contractor when test conditions dictate, provided the deviations are approved in advance by the COTR. The vehicle maximum 50 msec accelerations and the changes in vehicle velocity and momentum shall also be reported. One anthropomorphic dummy (uninstrumented), shall be used in the driver seat of all test vehicles in order to assess the probability of occupant injury. All dummies shall be restrained. Each of the above dummies shall be a 50th percentile male. In each test, an onboard camera shall be utilized to record the motions of the dummy. High-speed and real-time films, videotapes, slides, and still photographs shall be made of each test.

- B. In order to measure the vehicle crush depth, a minimum of six measurements shall be made before and after each full-scale test. The depth measurement points shall be equally spaced along the length of the damaged area in order to generally describe the damage penetration profile. The maximum static crush distance (damage penetration) shall also be measured and reported, regardless of its location. End, top, and lateral view photographs shall be taken of the full length of each damaged vehicle. The vehicle trajectory after impact shall also be measured and reported.
- C. The original spliced 16mm film, a color-corrected master 16mm film print, one 16mm work print, a BetaCam videotape, a 3/4-in videotape and two VHS videotapes of each test shall be delivered to the COTR. Videotapes are to be copies of the composite 16mm film and any additional video that is pertinent. Videos can also be composites of a series of tests if desired. Accompanying each 16mm film and videotape shall be a File Crash Test Data Sheet for each original, master and copy. These sheets shall be completed to the extent possible at the time of delivery of the films and videotapes. The Federal Highway Administration (FHWA) will assign film and videotape numbers and other information pertaining to logging the films and videotapes into the crash test film and video library at the National Crash Analysis Center (NCAC).
- D. Furnish to the COTR a single 150 mbyte (or 44 mbyte) Bernouilli cartridge. Deliver with the crash test films, the videotapes and the test report. This Bernouilli cartridge shall contain files with the headers and the general test information specified in FHWA Report No. FHWA-RD-91-039, "Specifications for the Collection and Storage of Crash Test Data, Volume II"(see Section J, Attachment No. 8). This general test information, e.g. the parameters that describe the vehicle, the test article and the test conditions will be used by FHWA to update the database at NCAC. The Bernouilli cartridge shall also contain a complete set of "NHTSA Data Tape Files" for the test. The files containing general test information and the test data files shall be formatted in accordance with the NHTSA Data Tape Reference Guide, 1985 or later edition.
- E. In tests nos. 3 and 4 with 820-kg cars, the car shall be instrumented with a minimum of one triaxial accelerometer and five uniaxial accelerometers. A triaxial accelerometer shall be located at the center of gravity of the test vehicle. The five uniaxial accelerometers shall be mounted at the following locations: 1) top of the engine block, 2) bottom of engine, 3) right front disc brake caliper, 4) left front disc brake caliper, and 5) center of instrument panel top surface. A minimum of six rosette strain gauges and an accelerometer shall be mounted on the skid-mounted sign.

In tests nos. 7, 8 and 11 with 2000-kg pickup trucks, the vehicles shall be instrumented with a minimum of two triaxial accelerometers and five uniaxial accelerometers. A triaxial accelerometer shall be located at the center of gravity of the test vehicle. A triaxial accelerometer shall be mounted on the bed of the pickup truck

over the rear axle. The five uniaxial accelerometers shall be mounted at the following locations: 1) top of the engine block, 2) bottom of engine, 3) right front disc brake caliper, 4) left front disc brake caliper, and 5) center of instrument panel top surface. The locations of all the accelerometers shall be measured and reported. A minimum of six rosette strain gauges and an accelerometer shall be mounted on the test article. The test data from this additional instrumentation will be used for validating finite element models of the test vehicles and the test appurtenances.

Task C - Full-Scale Crash Test Reports

1. Within 21 days after each full-scale test has been conducted, provide to the (COTR) five copies of a test report describing each test. The report shall include, as a minimum, the following:
 - a. A movie film including precrash and postcrash panning shots of the test vehicle, a panning shot of the test, and high-speed movies of the impact. The original spliced 16 mm film, a 16 mm color-corrected master film print, a BetaCam videotape, a 3/4-inch videotape, and two VHS videotapes of each test shall be delivered to the COTR. Videotapes are to be copies of the composite 16 mm film and any additional video that is pertinent. Accompanying each 16 mm film and videotape shall be a File Crash Test Data Sheet for each original, master and copy. These sheets shall be completed to the extent possible at the time of delivery of the films and videotapes. FHWA will assign film and videotape numbers and other information pertaining to logging the films and videotapes into the crash test film and video library at the NCAC.
 - b. Accompanying each film and videotape shall be a brief label with the test number and test conditions clearly identified so that the film reviewer can follow the tests. In all tests, the test number, vehicle weight, velocity, angle of incidence, the FHWA contract number, and any other pertinent test features should be identified on a test card shown on a sufficient number of frames of the film to allow a viewer, unfamiliar with the testing to follow the test.
 - c. Two sets of 35mm color slides of the test barrier and vehicle in its precrash and postcrash configurations.
 - d. Five copies of a test report that shall include all precrash and postcrash statistics on the barrier and test vehicle, a description of the test, all crush dimensions of significance, and a complete evaluation and analysis of the test. Black and white photos of the vehicle shall also be included.

- e. Furnish to the COTR a single 150 mbyte (or 44 mbyte) Bernoulli cartridge. Deliver with the crash test films, the videotapes and the test report. This Bernoulli cartridge shall contain files with the headers and the general test information specified in FHWA Report No. FHWA-RD-91-039, "Specifications for the Collection and Storage of Crash Test Data, Volume II". This general test information, e.g. the parameters that describe the vehicle, the test article and the test conditions will be used by FHWA to update the database at the National Crash Analysis Center (NCAC). The Bernoulli cartridge shall also contain a complete set of "NHTSA Data Tape Files" for the test. The files containing general test information and the test data files shall be formatted in accordance with the NHTSA Data Tape Reference Guide, 1985 or later edition.

Send a copy of each test report to each of the State representatives for SPR Pooled Fund Study No. 2-188, "Crash Tested Safety Appurtenances for Work Zones". Provide to the CO one copy of the transmittal letter.

Note to Offerors: For budget estimating purposes, assume that there will be thirteen State Representatives for SPR Pooled Fund Study No. 2-188.

Task D - Panel Meetings

1. During the conduct of the research, two review meetings shall be held at the Turner Fairbank Highway Research Center (TFHRC) in McLean, Virginia, or at another location (such as the contractor's office) as designated by the COTR. The purpose of these meetings is to review the current progress on the research and to discuss the results of the full-scale tests. The participants at one of these meetings will be the representatives of the States participating in SPR Pooled Fund Study No. 2-188, "Crash Tested Safety Appurtenances for Work Zones". The participants at the other meeting will be the representatives of the States participating in SPR Pooled Fund Study No. 2-187, "Roadside Safety Hardware Crash Tested to NCHRP 350".
2. The contractor shall take minutes of each meeting and mail a copy to each of the State representatives. The contractor shall also distribute travel voucher forms to the State representatives at each meeting, and reimburse them for their travel expenses. Federal employees are not eligible for reimbursement for travel expenses

Note to Offerors: Many of the State representatives for SPR Pooled fund Study No. 2-187 are also representatives for the companion Study No. 2-188. It is quite possible that the two meetings will be held sequentially at the same location. However, for bidding purposes it should be assumed that the meetings will be held separately. A total of \$17,000 should be budgeted for paying travel expenses for Study 2-187 and \$13,000 should be budgeted for Study 2-188.

Task E - Final Reports

1. Submit to the COTR ten copies of a single-spaced, draft final report and a two-page technical summary at least 180 days prior to the completion date of the contract. Provide to the CO one copy of the transmittal letter. The draft final report shall include a comprehensive discussion of the conclusions and recommendations derived from performance of the contract. A separate two-page technical summary highlighting the objectives, research approach, results, conclusions, and referencing the study final report shall be included along with this draft final report. The COTR will review the draft final report and the technical summary and the CO will furnish written technical comments to the Contractor within 30 days after receipt.
2. Revise the draft final report and the draft technical summary to reflect the Government's technical comments and submit second drafts of these documents to the COTR within 30 days after receipt of the comments. Provide to the CO one copy of the transmittal letter.
3. The COTR will have the second drafts of the final report and the technical summary reviewed to determine whether or not these documents meet the specifications for R&D reports that are defined below. The CO will furnish written editorial comments to the contractor within 60 days after receipt. The Government's written editorial comments shall be incorporated into the final report and the technical summary.
4. Revise the draft final report and the technical summary to reflect the Government's written editorial comments and return the revised documents to the COTR within 15 days after receipt of the comments. The red marked-up copies containing the editorial comments must also be returned to insure that all of the corrections have been incorporated into the documents. Provide to the CO one copy of the transmittal letter.
5. The COTR will review the revised final report and the technical summary and the CO will provide written comments to the contractor within 30 days after receipt. Upon approval of the revised report, provide to the COTR one camera-ready reproducible and ten copies of the final report and the technical summary within 15 days of receipt of the Government's written comments. One copy of the final report and the technical summary shall also be furnished to the CO. Approval of the final report will be provided in writing by the CO.

Specifications for R& D Reports

All final reports and technical summaries shall be prepared in accordance with Report Number FHWA-RD-95-057, *Research and Development - Quick Reference Guide* June 1995 (see Section J, Attachment No. 8). This report refers to selected pages of Report Number

FHWA-AD-88-001, *Guidelines for Preparing Federal Highway Administration Publications* January, 1988, and Change 1 dated May 20, 1994. All publications shall use the SI (modern metric) System of Units; English Equivalent units shall not be included.

NOTE: See SECTION L - INSTRUCTIONS TO OFFERORS, for guidance in preparing a response to the above tasks.

SECTION D - PACKAGING AND MARKING

D.1 There are NO articles for this section.

SECTION E - INSPECTION AND ACCEPTANCE

E.1 All work hereunder shall be subject to review by the Government. Acceptance of the final design manual, software and documentation, and training course materials shall be made in writing by the Contracting Officer.

E.2 **52.252-2 Clauses Incorporated by Reference. (JUN 1988)**

This contract incorporates one or more clauses by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available.

E.3 **52.246-9 Inspection of Research and Development (Short Form) (APR 1984)**

SECTION F - DELIVERIES OR PERFORMANCE

F.1 PERIOD OF PERFORMANCE

All work and services required hereunder including preparation and submission of the final design manual, software and documentation, and training course materials shall be completed on or before 38 months from the effective date of the contract.

F.2 PLACE OF DELIVERY

All deliverables and a copy of the monthly reports (See Section G) under the contract shall be delivered F.O.B. Destination, under transmittal letter, to the following address:

Federal Highway Administration
400 Seventh Street, S.W.
Washington, D.C. 20590

Attn: [to be filled in at award]

The monthly progress report and other items as specified shall be delivered to the Contracting Officer at the following address:

Federal Highway Administration
Office of Acquisition Management
HAM-30, Room 4410
Washington, D.C. 20590

F.3 SCHEDULE OF WORK

All tasks set forth in the Statement of Work shall be performed in accordance with the work schedule as negotiated. Performance shall begin on the effective date of the contract.

F.4 52.242-15 Stop-Work Order. (AUG 1989) -- Alternate I (APR 1984)

- (a) The Contracting Officer may, at any time, by written order to the Contractor, require the Contractor to stop all, or any part, of the work called for by this contract for a period of 90 days after the order is delivered to the Contractor, and for any further period to which the parties may agree. The order shall be specifically identified as a stop-work order issued under this clause. Upon receipt of the order, the Contractor shall immediately comply with its terms and take all reasonable steps to minimize the incurrence of costs allocable to the work covered by the order during the period of work stoppage. Within a period of 90 days after a stop-work order is delivered to the Contractor, or within any extension of that period to which the parties shall have agreed, the Contracting Officer shall either:
 - (1) Cancel the stop-work order; or
 - (2) Terminate the work covered by the order as provided in the Termination clause of this contract.
- (b) If a stop-work order issued under this clause is canceled or the period of the order or any extension thereof expires, the Contractor shall resume work. The Contracting Officer shall make an equitable adjustment in the delivery schedule, the estimated cost,

the fee, or a combination thereof, and in any other terms of the contract that may be affected, and the contract shall be modified, in writing, accordingly, if:

- (1) The stop-work order results in an increase in the time required for, or in the Contractor's cost properly allocable to, the performance of any part of this contract; and
 - (2) The Contractor asserts its right to the adjustment within 30 days after the end of the period of work stoppage; *provided*, that, if the Contracting Officer decides the facts justify the action, the Contracting Officer may receive and act upon a proposal submitted at any time before final payment under this contract.
- (c) If a stop-work order is not canceled and the work covered by the order is terminated for the convenience of the Government, the Contracting Officer shall allow reasonable costs resulting from the stop-work order in arriving at the termination settlement.
- (d) If a stop-work order is not canceled and the work covered by the order is terminated for default, the Contracting Officer shall allow, by equitable adjustment or otherwise, reasonable costs resulting from the stop-work order.

SECTION G - CONTRACT ADMINISTRATION DATA

G.1 MONTHLY PROGRESS REPORTS

The Contractor shall furnish to the COTR five copies of a monthly progress report on or before the 15th of the month following the period being reported. Provide one copy to the Contracting Officer. Send a copy of each monthly progress report to each of the State representatives for SPR Pooled Fund Study No. 2-188, "Crash Tested Safety Appurtenances for Work Zones". Each report shall contain concise statements covering the research activities relevant to the study, including:

- a. A clear and complete account of the work performed on each task.
- b. An outline of the work to be accomplished during the next report period.
- c. A brief synopsis and summary of the data on all dynamic and static tests performed during the reporting period.
- d. Hardware designs proposed for testing.

- e. A description of any problem encountered or anticipated that will affect the completion of the contract within the time and fiscal constraints as set forth in the contract, together with recommended solutions to such problems; or, a statement that no problems were encountered.
- f. A tabulation of the planned, actual and cumulative person-hours expended by the personnel identified in the Professional Staffing of the contract.
- g. A chart showing current and cumulative expenditures by tasks versus planned expenditures (see Section J, Attachment 1b).
- h. Current and cumulative hours and costs expended for ADP services (programming, computer time, etc.) or a statement that there were none (see Section J, Attachment No. 4).

G.2 FUNDS AVAILABLE

- a. Currently, funds in the amount of \$_____ are obligated to this contract.
- b. The balance of funding under this contract (\$_____) will be obligated subject to availability of funds and formal modification to this contract by the Contracting Officer.

The clause entitled "LIMITATION OF FUNDS" applies to this contract. Any notification required on the part of the Contractor shall be made in writing to the Contracting Officer. In the event that the contract is not funded beyond the estimated cost set forth in the schedule, the Contractor shall deliver to the Contracting Officer the data collected and the material produced or in process or acquired in connection with the performance of the project provided herein together with a summary report in five copies on its progress and accomplishments to date.

G.3 PAYMENT

- a. The Contractor may be reimbursed for direct and indirect costs incurred in the performance hereof as are allowable under the provisions of Subpart 31.2, 31.3, 31.6, or 31.7 (as applicable) of the Federal Acquisition Regulation in the not-to-exceed amount of \$_____ (to be negotiated) subject to the Limitation of Funds Clause.
- b. The Government shall pay the Contractor for performing this contract the fixed fee specified in the Schedule. Payment of the fixed fee shall be made as specified in the Schedule; provided that after payment of 85 percent of the fixed fee, the Contracting Officer may withhold further payment of fee until a reserve is set

aside in an amount that the Contracting Officer considers necessary to protect the Government's interest. This reserve shall not exceed 15 percent of the total fixed fee or \$100,000, whichever is less. The Contracting Officer shall release 75 percent of all fee withholds under this contract after receipt of the certified final indirect cost rate proposal covering the year of physical completion of this contract, provided the Contractor has satisfied all other contract terms and conditions, including the submission of the final patent and royalty reports, and is not delinquent in submitting final vouchers on prior years' settlements. The Contracting Officer may release up to 90 percent of the fee withholds under this contract based on the Contractor's past performance related to the submission and settlement of final indirect cost rate proposals.

- c. Each monthly interim payment request shall be supported by a statement of costs incurred by the Contractor in the performance of this contract and claimed to constitute allowable costs. In accordance with the clause 52.232-25, "Prompt Payment," these payments shall be made by the 30th day after receipt of proper request by the designated billing office. Any payments hereunder will be made upon determination by the Contracting Officer that the requirements of the contract are being met.
- d. Final invoice payment shall be made upon the Contracting Officer's determination that all requirements of the contract have been completed. The payment due date for final invoice shall be established in compliance with the clause 52.232-25.
- e. Each monthly interim payment request and the final invoice shall be submitted in accordance with the format contained in the attached "The FHWA Billing Instructions for Cost-Reimbursement Contracts" to be considered proper for payment. Prior approval of the Contracting Officer is required if the Contractor wishes to use a different format.

G.4 INDIRECT COSTS

Pending the establishment of final indirect cost rates which shall be negotiated based on audit of actual costs as provided in Subpart 42.7 of the Federal Acquisition Regulation, the Contractor shall be reimbursed for allowable indirect costs hereunder at the billing rate of [__TO BE NEGOTIATED__]. This INDIRECT COST provision does not operate to waive the LIMITATION OF FUNDS Clause. The Contractor's audited final indirect costs are allowable only insofar as they do not cause the Contractor to exceed the total estimated costs for performance of the contract listed on page 2 (SECTION B) and under the PAYMENT provision above.

G.5 TRAVEL AND PER DIEM

Travel and Per Diem authorized under this contract shall be reimbursed in accordance with the Government Travel Regulations currently in effect.

Travel requirements under this contract shall be met using the most economical form of transportation available. If economy class transportation is not available, the request for payment voucher must be submitted with justification for use of higher class travel indicating dates, times, and flight numbers. All travel shall be scheduled sufficiently in advance to take advantage of offered discount rates, unless authorized by the Contracting Officer.

G.6 CONTRACTING OFFICER'S TECHNICAL REPRESENTATIVE (COTR)

The Contracting Officer has designated _____ as Technical Representative (COTR) to assist in monitoring the work under this contract. The COTR is responsible for the technical administration of the contract and technical liaison with the Contractor. The COTR IS NOT authorized to change the scope of work or specifications as stated in the contract, to make any commitments or otherwise obligate the Government or authorize any changes which affect the contract price, delivery schedule, period of performance or other terms or conditions.

The Contracting Officer is the only individual who can legally commit or obligate the Government for the expenditure of public funds. The technical administration of this contract shall not be construed to authorize the revision of the terms and conditions of this contract. Any such revision shall be authorized in writing by the Contracting Officer.

G.7 SUBCONTRACTS - ADVANCE NOTIFICATION AND CONSENT

Under this contract, the requirements of FAR 44.2, CONSENT TO SUBCONTRACTS, have been fulfilled for the following subcontracts:

[as negotiated]

Any future change or revision to the Statement of Work or other applicable aspects of this contract shall include the subcontract(s) only to the extent that performance of the subcontract(s) is directly affected by the change or revision.

G.8 KEY PERSONNEL

The Contractor has designated _____ as the key personnel under this contract. In the event that any key personnel become unavailable to continue in the performance of this contract, the appointment of a replacement shall be subject to prior approval of the Contracting Officer.

G.9 PROFESSIONAL STAFFING

The Contractor agrees to assign the following professional staffing to this contract work (as negotiated, see Section L). In the event the Contractor finds it necessary to replace any of the assigned personnel during the performance of the contract, the Contracting Officer shall be notified in advance.

SECTION H - SPECIAL CONTRACT REQUIREMENTS**H.1 COMPUTER RELATED SERVICES**

The contract provides for the following ADP services:

[LIST]

Any change in performance requirements of the contract affecting these items shall be coordinated with the Contract Administrator immediately. The Contractor shall not exceed these limitations without prior approval of the Contracting Officer.

NOTE: At this time availability of Government computer facilities for use under this contract has not been determined. The Contractor shall not expend any funds for ADP services until authorized to do so by the Contracting Officer. See Attachment 4, Section J for FHWA ADP requirements.

PART II**SECTION I - CONTRACT CLAUSES****FH.1 Printing Restrictions**

All printing funded by this agreement must be done in conformance with Joint Committee on Printing regulations as prescribed in Title 44, United States Code, and Section 308 of Public Law 101-163, and all applicable Government Printing Office and Department of Transportation regulations.

52.222-2 Payment for Overtime Premium (JUL 1990)

- (a) The use of overtime is authorized under this contract if the overtime premium cost does not exceed zero or the overtime premium is paid for work:
 - (1) Necessary to cope with emergencies such as those resulting from accidents, natural disasters, breakdowns of production equipment, or occasional production bottlenecks of a sporadic nature;
 - (2) By indirect-labor employees such as those performing duties in connection with administration, protection, transportation, maintenance, standby plant protection, operation of utilities, or accounting;
 - (3) To perform tests, industrial processes, laboratory procedures, loading or unloading of transportation conveyances, and operations in flight or afloat that are continuous in nature and cannot reasonably be interrupted or completed otherwise; or
 - (4) That will result in lower overall costs to the Government.
- (b) Any request for estimated overtime premiums that exceeds the amount specified above shall include all estimated overtime for contract completion and shall:
 - (1) Identify the work unit; e.g., department or section in which the requested overtime will be used, together with present workload, staffing, and other data of the affected unit sufficient to permit the Contracting Officer to evaluate the necessity for the overtime;

- (2) Demonstrate the effect that denial of the request will have on the contract delivery or performance schedule;
- (3) Identify the extent to which approval of overtime would affect the performance or payments in connection with other Government contracts, together with identification of each affected contract; and
- (4) Provide reasons why the required work cannot be performed by using multishift operations or by employing additional personnel.

52.252-2 Clauses Incorporated by Reference (JUN 1988)

This contract incorporates one or more clauses by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available.

I. FEDERAL ACQUISITION REGULATION (48 CFR CHAPTER 1) CLAUSES

52.202-1	Definitions (OCT 1995)
52.203-3	Gratuities (APR 1984)
52.203-5	Covenant Against Contingent Fees (APR 1984)
52.203-7	Anti-Kickback Procedures (JUL 1995)
52.203-10	Price or Fee Adjustment for Illegal or Improper Activity (JAN 1997)
52.203-12	Limitation on Payments to Influence Certain Federal Transactions (JAN 1990)
52.204-4	Printing/Copying Double-Sided on Recycled Paper (JUN 1996)
52.209-6	Protecting the Governments Interest When Subcontracting With Contractors Debarred, Suspended, or Proposed for Debarment (JUL 1995)
52.215-2	Audit and Records--Negotiation (AUG 1996)
52.215-24	SubContractor Cost or Pricing Data (OCT 1995)
52.215-23	Price Reduction for Defective Cost or Pricing Data - Modifications (OCT 1995)
52.215-25	SubContractor Cost or Pricing Data - Modifications (OCT 1995)
52.215-33	Order of Precedence (JAN 1986)
52.216-7	Allowable Cost and Payment (FEB 1997)
52.216-8	Fixed Fee (FEB 1997)
52.216-11	Cost Contract - No Fee (APR 1984)
52.216-12	Cost-Sharing Contract - No Fee (APR 1984)
52.216-15	Predetermined Indirect Cost Rates (AUG 1996)
52.219-8	Utilization of Small, Small Disadvantaged and Women-Owned Small Business Concerns (OCT 1995)
52.222-3	Convict Labor (AUG 1996)
52.222-26	Equal Opportunity (APR 1984)

- 52.222-35 Affirmative Action for Special Disabled and Vietnam Era Veterans (APR 1984)
- 52.222-36 Affirmative Action for Handicapped Workers (APR 1984)
- 52.222-37 Employment Reports on Special Disabled Veterans and Veterans of the Vietnam Era (JAN 1988)
- 52.223-2 Clean Air and Water (APR 1984)
- 52.223-6 Drug-Free Workplace (JAN 1997)
- 52.225-11 Restrictions on Certain Foreign Purchases (OCT 1996)
- 52.227-2 Notice and Assistance Regarding Patent and Copyright Infringement (AUG 1996)
- 52.227-14 Rights in Data - General (JUN 1987)
- 52.227-16 Additional Data Requirements (JUN 1987)
- 52.228-7 Insurance - Liability to Third Persons (MAR 1996)
- 52.232-9 Limitation on Withholding of Payments (APR 1984)
- 52.232-17 Interest (JUN 1996)
- 52.232-22 Limitation of Funds (APR 1984)
- 52.232-23 Assignment of Claims (JAN 1986)
- 52.232-25 Prompt Payment (MAR 1994)
- 52.233-1 Disputes (OCT 1995)
- 52.233-3 Protest After Award (AUG 1996) -- Alternate I (JUN 1985)
- 52.242-1 Notice of Intent to Disallow Costs (APR 1984)
- 52.242-2 Production Progress Reports (APR 1991)
- 52.242-4 Certification of Final Indirect Costs (JAN 1997)
- 52.242-13 Bankruptcy (JUL 1995)
- 52.243-2 Changes - Cost-Reimbursement (AUG 1987)
- 52.244-2 Subcontracts (Cost-Reimbursement and Letter Contracts) (FEB 1997)
- 52.244-5 Competition in Subcontracting (DEC 1996)
- 52.249-5 Termination for Convenience of the Government (Educational and Other Nonprofit Institutions) (SEP 1996)
- 52.249-6 Termination (Cost-Reimbursement) (SEP 1996)
- 52.249-14 Excusable Delays (APR 1984)
- 52.253-1 Computer Generated Forms (JAN 1991)

II. DEPARTMENT OF TRANSPORTATION ACQUISITION REGULATIONS (48 CHAPTER 12) CLAUSES

- 1252.242-70 Dissemination of information - educational institutions (OCT 1994)
- 1252.242-71 Contractor testimony (OCT 1994)
- 1252.242-72 Dissemination of contract information (OCT 1994)

52.252-4 ALTERATIONS IN CONTRACT (APR 1984)

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Portions of this contract are altered as follows: None.

PART III**SECTION J - LIST OF ATTACHMENTS**

1. Sample Formats for Progress Reports
 - a. Monthly Progress Report - 1 page
 - b. Progress by Task - 1 page
2. Sample Format for Staffing Assignments/Task Breakdown - 1 page
3. Standard Form 1448 and Price Proposal Budget Summary Format - 2 pages
4. FHWA ADP Information and Requirements with ADP Equipment and Services Form and Documentation Guidelines for Microcomputer Applications Information Systems - 10 pages
5. Standard Form LLL, Disclosure of Lobbying Activities - 3 pages
6. Optional Form 17, Offer Label - 1 page
7. Priority List for SPR Pooled Fund Study No. 2-188 entitled, "Crash Tested Safety Appurtenances for Work Zones" - 1 page
8. References - 1 page
9. Summary of Supplementary Evaluation Factors - 2 pages

P A R T I V**SECTION K - REPRESENTATIONS, CERTIFICATIONS, AND OTHER
STATEMENTS OF OFFERORS OR QUOTERS****52.204-3 Taxpayer Identification (MAR 1994)****(a) *Definitions.***

“Common parent,” as used in this solicitation provision, means that corporate entity that owns or controls an affiliated group of corporations that files its Federal income tax returns on a consolidated basis, and of which the offeror is a member.

“Corporate status,” as used in this solicitation provision, means a designation as to whether the offeror is a corporate entity, an unincorporated entity (e.g., sole proprietorship or partnership), or a corporation providing medical and health care services.

“Taxpayer Identification Number (TIN),” as used in this solicitation provision, means the number required by the IRS to be used by the offeror in reporting income tax and other returns.

- (b) All offerors are required to submit the information required in paragraphs (c) through (e) of this solicitation provision in order to comply with reporting requirements of 26 U.S.C. 6041, 6041A, and 6050M and implementing regulations issued by the Internal Revenue Service (IRS). If the resulting contract is subject to reporting requirements described in FAR 4.903, the failure or refusal by the offeror to furnish the information may result in a 31 percent reduction of payments otherwise due under the contract.

(c) *Taxpayer Identification Number (TIN).*

___ TIN: _____.

___ TIN has been applied for.

___ TIN is not required because:

___ Offeror is a nonresident alien, foreign corporation, or foreign partnership that does not have income effectively connected with the conduct of a trade or business in the

U.S. and does not have an office or place of business or a fiscal paying agent in the U.S.;

___ Offeror is an agency or instrumentality of a foreign government;

___ Offeror is an agency or instrumentality of a Federal, state or local government;

___ Other. State basis. _____

(d) *Corporate Status.*

___ Corporation providing medical and health care services, or engaged in the billing and collecting of payments for such services;

___ Other corporate entity;

___ Not a corporate entity;

___ Sole proprietorship

___ Partnership

___ Hospital or extended care facility described in 26 CFR 501(c)(3) that is exempt from taxation under 26 CFR 501(a).

(e) *Common Parent*

___ Offeror is not owned or controlled by a common parent as defined in paragraph (a) of this clause.

___ Name and TIN of common parent:

Name _____

TIN _____

52.204-5 Women-Owned Business (OCT 1995)

- (a) *Representation.* The offeror represents that it () is, () is not a women-owned business concern.

- (b) *Definition.* “Women-owned business concern,” as used in this provision, means a concern which is at least 51 percent owned by one or more women; or in the case of any publicly owned business, at least 51 percent of the stock of which is owned by one or more women; and whose management and daily business operations are controlled by one or more women.

52.209-5 Certification Regarding Debarment, Suspension, Proposed Debarment, and Other Responsibility Matters (MAR 1996)

- (a) The Offeror certifies:

- (1) to the best of its knowledge and belief, that:

- (i) The Offeror and/or any of its Principals:

- (A) Are () are not () presently debarred, suspended, proposed for debarment, or declared ineligible for the award of contracts by any Federal agency;
- (B) Have () have not (), within a 3-year period preceding this offer, been convicted of or had a civil judgment rendered against them for: commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, state, or local) contract or subcontract; violation of Federal or state antitrust statutes relating to the submission of offers; or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, tax evasion, or receiving stolen property; and
- (C) Are () are not () presently indicted for, or otherwise criminally or civilly charged by a governmental entity with, commission of any of the offenses enumerated in subdivision (a)(1)(i)(B) of this provision.

- (ii) The Offeror has () has not (), within a 3-year period preceding this offer, had one or more contracts terminated for default by any Federal agency.

- (2) “Principals,” for the purposes of this certification, means officers; directors; owners; partners; and, persons having primary management or supervisory responsibilities within a business entity (e.g., general manager; plant manager; head of a subsidiary, division, or business segment, and similar positions).

This certification concerns a matter within the jurisdiction of an agency of the United States and the making of a false, fictitious, or fraudulent certification may render the maker subject to prosecution under section 1001, title 18, United States Code.

- (b) The Offeror shall provide immediate written notice to the Contracting Officer if, at any time prior to contract award, the Offeror learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.
- (c) A certification that any of the items in paragraph (a) of this provision exists will not necessarily result in withholding of an award under this solicitation. However, the certification will be considered in connection with a determination of the Offeror's responsibility. Failure of the Offeror to furnish a certification or provide such additional information as requested by the Contracting Officer may render the Offeror nonresponsible.
- (d) Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render, in good faith, the certification required by paragraph (a) of this provision. The knowledge and information of an Offeror is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.
- (e) The certification in paragraph (a) of this provision is a material representation of fact upon which reliance was placed when making award. If it is later determined that the Offeror knowingly rendered an erroneous certification, in addition to other remedies available to the Government, the Contracting Officer may terminate the contract resulting from this solicitation for default.

52.215-6 Type of Business Organization (JUL 1987)

The offeror or quoter, by checking the applicable box, represents that:

- (a) operates as ____ a corporation incorporated under the laws of the State of _____, ____ an individual, ____ a partnership, ____ a nonprofit organization, or ____ a joint venture; or
- (b) If the offeror or quoter is a foreign entity, it operates as ____ an individual, ____ a partnership, ____ a nonprofit organization, ____ a joint venture, or ____ a corporation, registered for business in _____ (country).

52.215-11 Authorized Negotiators (APR 1984)

The offeror or quoter represents that the following persons are authorized to negotiate on its behalf with the Government in connection with this request for proposals or quotations:

(list names, titles, and telephone numbers of the authorized negotiators)

FH.3 Other Communications

To facilitate communications, please provide your Telefax (FAX) number, if available.

FAX Number: _____

FH.4 Federal Procurement Data

Each Contractor receiving an award over \$25,000 will be requested to provide the information as set forth below:

- (1) Dun and Bradstreet Number: _____
- (2) Home Office County and Congressional District: _____
- (3) Congressional District of the Principal place of performance:

- (4) SIC (Standard Industrial Code):

52.219-1 Small Business Program Representations (JAN 1997)

- (a) (1) The standard industrial classification (SIC) code for this acquisition is 8742.
- (2) The small business size standard is an annual average gross revenues for the last three years that does not exceed \$5 million dollars.
- (3) The small business size standard for a concern which submits an offer in its own name, other than on a construction or service contract, but which proposes to furnish a product which it did not itself manufacture, is 500 employees.

THIS REQUIREMENT IS NOT A SMALL BUSINESS SET-ASIDE.

- (b) *Representations*

- (1) The offeror represents as part of its offer that it () is, () is not a small business concern.
- (2) (Complete only if offeror represented itself as a small business concern in block (b)(1) of this section.) The offeror represents as part of its offer that it () is, () is not a small disadvantaged business concern.
- (3) (Complete only if offeror represented itself as a small business concern in block (b)(1) of this section.) The offeror represents as part of its offer that it () is, () is not a women-owned small business concern.

(c) *Definitions.*

Joint venture, for purposes of a small disadvantaged business (SDB) set-aside or price evaluation preference (as prescribed at 13 CFR 124.321), is a concern that is owned and controlled by one or more socially and economically.

Small business concern, as used in this provision, means a concern, including its affiliates, that is independently owned and operated, not dominant in the field of operation in which it is bidding on Government contracts, and qualified as a small business under the criteria in 13 CFR Part 121 and the size standard in paragraph (a) of this provision.

Small disadvantaged business concern, as used in this provision, means a small business concern that (1) is at least 51 percent unconditionally owned by one or more individuals who are both socially and economically disadvantaged, or a publicly owned business having at least 51 percent of its stock unconditionally owned by one or more socially and economically disadvantaged individuals, and (2) has its management and daily business controlled by one or more such individuals. This term also means a small business concern that is at least 51 percent unconditionally owned by an economically disadvantaged Indian tribe or Native Hawaiian Organization, or a publicly owned business having at least 51 percent of its stock unconditionally owned by one or more of these entities, which has its management and daily business controlled by members of an economically disadvantaged Indian tribe or Native Hawaiian Organization, and which meets the requirements of 13 CFR Part 124.

Women-owned small business concern, as used in this provision, means a small business concern--

- (1) Which is at least 51 percent owned by one or more women or, in the case of any publicly owned business, at least 51 percent of the stock of which is owned by one or more women; and

- (2) Whose management and daily business operations are controlled by one or more women.
- (d) *Notice.*
 - (1) If this solicitation is for supplies and has been set aside, in whole or in part, for small business concerns, then the clause in this solicitation providing notice of the set-aside contains restrictions on the source of the end items to be furnished.
 - (2) Under 15 U.S.C. 645(d), any person who misrepresents a firm's status as a small or small disadvantaged business concern in order to obtain a contract to be awarded under the preference programs established pursuant to sections 8(a), 8(d), 9, or 15 of the Small Business Act or any other provision of Federal law that specifically references section 8(d) for a definition of program eligibility, shall--
 - (i) Be punished by imposition of fine, imprisonment, or both;
 - (ii) Be subject to administrative remedies, including suspension and debarment; and
 - (iii) Be ineligible for participation in programs conducted under the authority of the Act.

52.222-21 Certification of Nonsegregated Facilities (APR 1984)

- (a) "Segregated facilities," as used in this provision, means any waiting rooms, work areas, rest rooms and wash rooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees, that are segregated by explicit directive or are in fact segregated on the basis of race, color, religion, or national origin because of habit, local custom, or otherwise.
- (b) By the submission of this offer, the offeror certifies that it does not and will not maintain or provide for its employees any segregated facilities at any of its establishments, and that it does not and will not permit its employees to perform their services at any location under its control where segregated facilities are maintained. The offeror agrees that a breach of this certification is a violation of the Equal Opportunity clause in the contract.

- (c) The offeror further agrees that (except where it has obtained identical certifications from proposed subcontractors for specific time periods) it will:
- (1) Obtain identical certifications from proposed subcontractors before the award of subcontracts under which the subcontractor will be subject to the Equal Opportunity clause;
 - (2) Retain the certifications in the files; and
 - (3) Forward the following notice to the proposed subcontractors (except if the proposed subcontractors have submitted identical certifications for specific time periods):

**NOTICE TO PROSPECTIVE SUBCONTRACTORS OF REQUIREMENT FOR
CERTIFICATIONS OF NONSEGREGATED FACILITIES**

A Certification of Nonsegregated Facilities must be submitted before the award of a subcontract under which the subContractor will be subject to the Equal Opportunity clause. The certification may be submitted either for each subcontract or for all subcontracts during a period (i.e., quarterly, semiannually, or annually).

NOTE: The penalty for making false statements in offers is prescribed in 18 U.S.C. 1001.

52.222-22 Previous Contracts and Compliance Reports (APR 1984)

The offeror represents that:

- (a) It ___ has, ___ has not participated in a previous contract or subcontract subject either to the Equal Opportunity clause of this solicitation, the clause originally contained in Section 310 of Executive Order No. 10925, or the clause contained in Section 201 of Executive Order No. 11114;
- (b) It ___ has, ___ has not, filed all required compliance reports; and
- (c) Representations indicating submission of required compliance reports, signed by proposed subcontractors, will be obtained before subcontract awards.

52.222-25 Affirmative Action Compliance (APR 1984)

The offeror represents that:

- (a) It ____ has developed and has on file, ____ has not developed and does not have on file, at each establishment, affirmative action programs required by the rules and regulations of the Secretary of Labor (41 CFR 60-1 and 60-2); or
- (b) it ____ has not previously had contracts subject to the written affirmative action programs requirement of the rules and regulations of the Secretary of Labor.

52.223-1 Clean Air and Water Certification (APR 1984)

The Offeror certifies that:

- (a) Any facility to be used in the performance of this proposed contract is ____ , is not ____ listed on the Environmental Protection Agency (EPA) List of Violating Facilities;
- (b) The Offeror will immediately notify the Contracting Officer, before award, of the receipt of any communication from the Administrator, or a designee, of the EPA, indicating that any facility that the Offeror proposes to use for the performance of the contract is under consideration to be listed on the EPA List of Violating Facilities; and
- (c) The Offeror will include a certification substantially the same as this certification, including this paragraph (c), in every nonexempt subcontract.

52.227-15 Representation of Limited Rights Data and Restricted Computer Software (JUN 1987)

- (a) This solicitation sets forth the work to be performed if a contract award results, and the Government's known delivery requirements for data (as defined in FAR 27.401). Any resulting contract may also provide the Government the option to order additional data under the Additional Data Requirements clause at 52.227-16 of the FAR, if included in the contract. Any data delivered under the resulting contract will be subject to the Rights in Data - General clause at 52.227-14 that is to be included in this contract. Under the latter clause, a Contractor may withhold from delivery data that qualify as limited rights data or restricted computer software, and deliver form, fit, and function data in lieu thereof. The latter clause also may be used with its *Alternates II* and/or *III* to obtain delivery of limited rights data or restricted computer software, marked with limited rights or restricted rights notices, as appropriate. In addition, use of *Alternate V* with this latter clause provides the Government the right to inspect such data at the Contractor's facility.
- (b) As an aid in determining the Government's need to include any of the aforementioned *Alternates* in the clause at 52.227-14, Rights in Data - General, the offeror's response to this solicitation shall, to the extent feasible, complete the representation in paragraph (b) of this provision to either state that none of the data qualify as limited rights data or restricted computer software, or identify which of the data qualifies as limited rights data or restricted computer software. Any identification of limited rights data or restricted computer software in the offeror's response is not determinative of the status of such data should a contract be awarded to the offeror.

REPRESENTATION CONCERNING DATA RIGHTS

Offeror has reviewed the requirements for the delivery of data or software and states (offeror check appropriate block) -

_____ None of the data proposed for fulfilling such requirements qualifies as limited rights data or restricted computer software.

_____ Data proposed for fulfilling such requirements qualify as limited rights data or restricted computer software and are identified as follows:

Note: "Limited rights data" and "Restricted computer software" are defined in the contract clause entitled "Rights In Data - General."

FH.2 Notification Of Defective Invoices

Each Contractor receiving an award will be requested to identify a person or office to be contacted for prompt notification regarding the receipt by the Government of a defective invoice.

Name _____

Title _____

Address _____

City & State _____ Zip Code _____

Area Code _____ Telephone No. _____

Telex No. _____ TWX _____

TO BE COMPLETED BY OFFEROR

NAME: _____

DATE: _____

BY: _____
(Signature) (Title)

SECTION L - INSTRUCTIONS, CONDITIONS, AND NOTICES TO OFFERORS

(please show the RFP number and closing date on the forwarding envelope)

NOTE: Only uniformed couriers dressed in a uniform bearing their organization's name and possessing official identification may deliver proposals or sealed bids directly to Room 4410. Security procedures prohibit nonuniformed couriers from delivering material directly to offices in the Nassif Building; such couriers must deliver material to the northeast guard station at the Nassif Building. The guard will accept the material, dismiss the courier, and then the material will be examined prior to being delivered to Room 4410 through the normal Nassif Building mail delivery procedures. Offerors planning to use nonuniformed couriers should make allowances for these procedures in order to assure that offers arrive at Room 4410 on time. Bids/offers must be received in Room 4410 to be considered timely, not just delivered to the Nassif mail room or loading dock. To assist in expediting delivery after the guard accepts a bid/offer, the outside of the envelope/package containing the offer should be marked with the completed Optional Form 17, Offer Label, provided with this solicitation as Attachment No. 6, see SECTION J.

NOTE: As prescribed by 52.215-16, the Government may award a contract on the basis of initial offers received, without discussion. Therefore, each initial offer should contain the offeror's best terms from a price and technical standpoint.

NOTE: Facsimile bids/proposals will not be considered for this solicitation.

52.215-12 Restriction on Disclosure and Use of Data. (APR 1984)

Offerors or quoters who include in their proposals or quotations data that they do not want disclosed to the public for any purpose or used by the Government except for evaluation purposes, shall:

- (a) Mark the title page with the following legend:

“This proposal or quotation includes data that shall not be disclosed outside the Government and shall not be duplicated, used, or disclosed - in whole or in part - for any purpose other than to evaluate this proposal or quotation. If, however, a contract is awarded to this offeror or quoter as a result of - or in connection with - the submission of this data, the Government shall have the right to duplicate, use, or disclose the data to the extent provided in the resulting contract. This restriction does not limit the Government’s right to use information contained in this data if it is

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obtained from another source without restriction. The data subject to this restriction are contained in sheets _____ (*insert numbers or other identification of sheet*); and

- (b) Mark each sheet of data it wishes to restrict with the following legend:

“Use or disclosure of data contained on this sheet is subject to the restriction on the title page of this proposal or quotation.”

52.216-1 TYPE OF CONTRACT (APR 1984)

The Government contemplates awarding a cost reimbursement contract from this solicitation.

THIS REQUIREMENT IS NOT A SMALL BUSINESS SET-ASIDE.

Instructions for Preparation of Proposals

In responding to this solicitation please submit your proposal in four separate parts as follows:

Part I - Technical Proposal

A technical proposal, not to exceed 30 pages, including figures, tables, and appendices, describing how you would proceed if awarded a contract. Include the following elements in your technical proposal (see also the statement of work and the technical evaluation criteria):

- A. Technical and management approach.
- B. Assumptions, deviations, and exceptions (as necessary).
- C. Identify technical uncertainties, and make specific proposals for the resolution of any uncertainties.
- D. An organized workplan setting forth a specific schedule of the work to be performed as outlined in Section C, STATEMENT OF WORK. The workplan shall be in such a form as to establish a firm schedule of dates for the start and completion of all tasks as described in the statement of work.
- E. The name(s) and title(s) of the person(s) who actually wrote the proposal.

Part II - Staffing Proposal

Provide the names of all personnel and the positions they will occupy as related to this project. The estimated professional and technical staffing shall be provided in staff-months. Biographical summaries of key personnel shall also be included.

NOTE: The staffing information shall be provided on a task by task basis by discipline in accordance with the format identified as Attachment 2, Section J.

The Principal Investigator shall devote at least 15 percent of his/her working time to the effort during the period of performance of this contract.

The FHWA reserves the right to approve any changes in the Principal Investigator or other key personnel.

The following disciplines and/or expertise are believed to be necessary for the successful completion of this project:

Research engineer, structural designer.

The Government's estimate of staffing is shown below. The estimate is advisory, it should be used as a general guide and not be considered as a maximum or minimum limit by the offerors in preparing their proposal.

LEVEL OF EFFORT IN PERSON-MONTH BY TASK

DISCIPLINE/TASK	A	B	C	D	E	TOTAL
Principal Investigator	0.6	5.0	0.3	0.2	0.5	6.6
Research Engineer	0.3	5.9	1.1	0.1	0.4	7.8
Structural Designer	-----	0.1	-----	0.1	-----	0.2
Senior Technician	0.1	6.9	-----	-----	-----	7.0
Technicians	0.7	19.4	-----	-----	-----	20.1
Clerical Staff	0.1	2.4	0.6	0.2	0.7	4.0
TOTAL	1.8	39.7	2.0	0.6	1.6	45.7

1 person-month = 160 hours

Part III - BUSINESS AND COST/PRICE PROPOSAL

This volume shall include all pricing information and certain general financial/organizational information, as described below:

A. Cost/Price Information

1. Cost estimates by task. Cost and pricing data are not required in response to this solicitation because it is anticipated that the resultant contract award is at or below the cost or pricing data threshold (currently \$500,000). The Government will make a price analysis to determine the reasonableness of the price and any need for further negotiation. **Offerors are asked to submit information other than cost or pricing data by submitting the Standard Form 1448 and Price Proposal Budget Summary, see Section J, Attachment 3. This information other than cost or pricing data is necessary in order to help establish price reasonableness or price realism.**

2. Facilities and Special Equipment, Including Tooling.

It is the general policy of the FHWA not to provide general or special purpose equipment, facilities, or tooling of a capital nature except in unusual circumstances. Items having a unit cost of less than \$1,000 will not be provided to you except as authorized with nonprofit institutions or State and local governments. **If special purpose equipment of a capital nature is being proposed, provide a description of the items, details of the proposed cost including competitive prices, and a justification as to why the Government should furnish the equipment or allow its purchase with contract funds.**

3. Your proposal must include a statement regarding availability of facilities and equipment necessary to accomplish the required work. If any or all of the required facilities are Government-owned, a complete listing of these facilities is required and the name of the cognizant Government agency furnishing the facilities and the facilities contract number(s).

4. Subcontracts/Consultants.

If subcontractors and/or individual consultants will be used in carrying out the requirements of this project, the following minimum information concerning the subcontractor shall be furnished:

- a. Name and address of the subcontractor or consultant.
- b. Statement of work and work plan (schedule) for the portion of work to be conducted by the subcontractor or consultant.
- c. Names and positions of personnel who will work on the project.

- d. A letter or other statement from each proposed consultant and/or subcontractor indicating that he has been approached on the matter of participation in this study and that he is willing and able to do so in the terms indicated.
5. ADP Services/Equipment.

If ADP services are anticipated in carrying out the requirements of the project, the information set out in Attachment 4, Section J shall be completed, and the form shall be returned with your submission.

B. Other Financial/Organizational Information

1. General Information. You must attach a supplemental sheet providing the following information:
- a. Indicate your fiscal year period (provide month to month dates).
 - b. Indicate whether the proposed indirect cost rate(s) have been audited and accepted by any Federal audit agency. Give name, location and telephone number of the agency, and the date of acceptance.
 - c. Indicate whether your system of control of Government property has been approved by a Government agency. If so, provide the name, location and telephone number of the Government agency, and date of approval.
 - d. Indicate whether written purchasing procedures exist, and whether your purchasing system has been approved by a Government agency. If so, provide the name, location and telephone number of the cognizant agency, and date of approval.
 - e. Indicate whether your cost estimating system has been approved by any Government agency. If so, provide the name, location and telephone number of the cognizant agency, and date of approval.
 - f. Indicate whether your cost accumulation system has been approved by any Government agency. If so, provide the name, location and telephone number of the cognizant agency, and date of approval.
2. Past Performance References.

The offeror is required to submit, as part of its proposal, information on all contracts (up to 10 maximum) involving similar or related services over the past three years with FHWA and/or other organizations (both commercial and

Governmental). The information must include the name and address of the organization for which services were performed; the current telephone number of a responsible technical representative of the organization; the contract number, if applicable; the type of contract performed; and a brief description of the services provided, including the period of performance. FHWA may use this information to contact technical representative on previous contracts to obtain information regarding performance. Failure to provide complete information regarding previous similar and/or related contracts may result in eventual disqualification. The contracting officer will consider such performance information along with other factors in determining whether the offeror is to be considered responsible, as defined in FAR 9.101.

List any contract that was terminated for convenience of the Government within the past 3 years, and any contract that was terminated for default within the past 5 years. Briefly explain the circumstances in each instance.

Publications

The FHWA publications may be obtained at the address below:

Research and Technology Report Center
9701 Philadelphia Court, Suite Q
Lanham, Maryland 20706
(301) 577-0818

Federal Information Processing Standards Publication 38 (FIPS PUB) dated February 15, 1976, and FIPS PUB 64 dated August 1, 1979, are incorporated by reference and is available for purchase from:

National Technical Information Service
5235 Port Royal Road
Springfield, Virginia 22164
(703) 487-4650

Until a formal notice of award is issued, no communication by the Government either written or oral shall be interpreted as a promise that an award will be made.

The Contracting Officer is the only individual who can legally commit or obligate the Government to the expenditure of public funds. No cost chargeable to the proposed contract can be incurred before receipt of a fully executed contract or specific written authorization from the Contracting Officer.

52.233-2 SERVICE OF PROTEST (OCT 1995)

- (a) Protests, as defined in section 33.101 of the Federal Acquisition Regulation, that are filed directly with an agency, and copies of any protests that are filed with the General Accounting Office (GAO) or the General Services Administration Board of Contract Appeals (GSBCA), shall be served on the Contracting Officer (addressed as follows) by obtaining written and dated acknowledgement of receipt from Mr. Frank J. Waltos, HAM-20, Room 4404, 400 Seventh Street, SW., Washington, D.C. 20590.
- (b) The copy of any protest shall be received in the office designated above on the same day a protest is filed with the GSBCA or within one day of filing a protest with the GAO.
- (c) In this procurement, you may not protest to the GSBCA because of the nature of supplies or services being procured.

**I. FEDERAL ACQUISITION REGULATION (48 CFR CHAPTER 1)
SOLICITATION PROVISIONS****52.252-1 SOLICITATION PROVISIONS INCORPORATED BY REFERENCE.
(JUN 1988)**

This solicitation incorporates one or more solicitation provisions by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available.

- 52.215-5 Solicitation Definitions (JUL 1987)
- 52.215-7 Unnecessarily Elaborate Proposals or Quotations (APR 1984)
- 52.215-8 Amendments to Solicitations (DEC 1989)
- 52.215-9 Submission of Offers (FEB 1997)
- 52.215-10 Late Submissions, Modifications, and Withdrawals of Proposals (FEB 1997)
- 52.215-13 Preparation of Offers (APR 1984)
- 52.215-14 Explanation to Prospective Offerors (APR 1984)
- 52.215-15 Failure to Submit Offer (JUL 1995)
- 52.215-16 Contract Award (OCT 1995)
- 52.215-30 Facilities Capital Cost of Money (SEP 1987)
- 52.215-41 Requirements for Cost or Pricing Data or Information Other Than Cost or Pricing Data (JAN 1997)

- (a) Exceptions from cost or pricing data.

- (1) In lieu of submitting cost or pricing data, offerors may submit a written request for exception by submitting the information described in the following subparagraphs. The Contracting Officer may require additional supporting information, but only to the extent necessary to determine whether an exception should be granted, and whether the price is fair and reasonable.
 - (i) Identification of the law or regulation establishing the price offered. If the price is controlled under law by periodic rulings, reviews, or similar actions of a governmental body, attach a copy of the controlling document, unless it was previously submitted to the contracting office.
 - (ii) For a commercial item exception, the offeror shall submit, at a minimum, information on prices at which the same item or similar items have previously been sold that is adequate for evaluating the reasonableness of the price for this acquisition.

Such information may include--

- (A) For catalog items, a copy of or identification of the catalog and its date, or the appropriate pages for the offered items, or a statement that the catalog is on file in the buying office to which the proposal is being submitted. Provide a copy or describe current discount policies and price lists (published or unpublished), e.g., wholesale, original equipment manufacturer, or reseller. Also explain the basis of each offered price and its relationship to the established catalog price, including how the proposed price relates to the price of recent sales in quantities similar to the proposed quantities.
 - (B) For market-priced items, the source and date or period of the market quotation or other basis for market price, the base amount, and applicable discounts. In addition, describe the nature of the market.
 - (C) For items included on an active Federal Supply Service Multiple Award Schedule contract, proof that an exception has been granted for the schedule item.
- (2) The offeror grants the Contracting Officer or an authorized representative the right to examine, at any time before award, books, records, documents, or other directly pertinent records to verify any request for an exception under this provision, and the reasonableness of price. Access does not extend to cost or

profit information or other data relevant solely to the offeror's determination of the prices to be offered in the catalog or marketplace.

- (b) Requirements for cost or pricing data. If the offeror is not granted an exception from the requirement to submit cost or pricing data, the following applies:
 - (1) The offeror shall submit cost or pricing data on Standard Form (SF) 1411, Contract Pricing Proposal Cover Sheet (Cost or Pricing Data Required), with supporting attachments prepared in accordance with Table 15-2 of FAR 15.804-6(b)(2).
 - (2) As soon as practicable after agreement on price, but before contract award (except for unpriced actions such as letter contracts), the offeror shall submit a Certificate of Current Cost or Pricing Data, as prescribed in FAR 15.804-4.

52.215-42 Requirements for Cost or Pricing Data or Information Other Than Cost or Pricing Data--Modifications (JAN 1997)

- (a) Exceptions from cost or pricing data.
 - (1) In lieu of submitting cost or pricing data for modifications under this contract, for price adjustments expected to exceed the threshold set forth at FAR 15.804-2(a)(1) on the date of the agreement on price or the date of the award, whichever is later, the Contractor may submit a written request for exception by submitting the information described in the following subparagraphs. The Contracting Officer may require additional supporting information, but only to the extent necessary to determine whether an exception should be granted, and whether the price is fair and reasonable--
 - (i) Identification of the law or regulation establishing the price offered. If the price is controlled under law by periodic rulings, reviews, or similar actions of a governmental body, attach a copy of the controlling document, unless it was previously submitted to the contracting office.
 - (ii) Information on modifications of contracts or subcontracts for commercial items.
 - (A) If (1) The original contract or subcontract was granted an exception from cost or pricing data requirements because the price agreed upon was based on adequate price competition, or prices set by law or regulation, or was a contract or subcontract for the acquisition of a commercial item, and (2) the

modification (to the contract or subcontract) is not exempted based on one of these exceptions, then the Contractor may provide information to establish that the modification would not change the contract or subcontract from a contract or subcontract for the acquisition of a commercial item to a contract or subcontract for the acquisition of an item other than a commercial item.

- (B) For a commercial item exception, the Contractor shall provide, at a minimum, information on prices at which the same item or similar items have previously been sold that is adequate for evaluating the reasonableness of the price of the modification. Such information may include:
 - (1) For catalog items, a copy of or identification of the catalog and its date, or the appropriate pages for the offered items, or a statement that the catalog is on file in the buying office to which the proposal is being submitted. Provide a copy or describe current discount policies and price lists (published or unpublished), e.g., wholesale, original equipment manufacturer, or reseller. Also explain the basis of each offered price and its relationship to the established catalog price, including how the proposed price relates to the price of recent sales in quantities similar to the proposed quantities.
 - (2) For market-price items, the source and date or period of the market quotation or other basis for market price, the base amount, and the applicable discounts. In addition, describe the nature of the market.
 - (3) For items included on an active Supply Service Multiple Award Schedule contract, proof that an exception has been granted for the schedule.
- (2) The Contractor grants the Contracting Officer or an authorized representative the right to examine, at any time before award, books, records, documents, or other directly pertinent records to verify any request for an exception under this clause, and the reasonableness of price. Access does not extend to cost or profit information or other data relevant solely to the Contractor's determination of the prices to be offered in the catalog or marketplace.

- (b) Requirements for cost or pricing data. If the Contractor is not granted an exception from the requirement to submit cost pricing data, the following applies:
- (1) The Contractor shall submit cost or pricing data on standard Form (SF) 1411 Contract Pricing Proposal Cover Sheet (Cost or Pricing Data Required), with supporting attachments prepared in accordance with Table 15-2 of FAR 15.804-6(b)(2).
 - (2) As soon as practical after agreement on price, but before award (except for unpriced actions), the Contractor shall submit a Certificate of Current Cost or Pricing Data, as prescribed by FAR 15.804-4.

52.227-6 Royalty Information (APR 1984)

II. DEPARTMENT OF TRANSPORTATION ACQUISITION REGULATION (48 CFR CHAPTER 12) SOLICITATION PROVISIONS

52.252-5 AUTHORIZED DEVIATIONS IN PROVISIONS (APR 1984)

- (a) The use in this solicitation of any Federal Acquisition Regulation (48 CFR Chapter 1) provision with an authorized deviation is indicated by the addition of "(DEVIATION)" after the date of the provision.
- (b) The use in this solicitation of any Department of Transportation Acquisition Regulation (48 CFR Chapter 12) provision with an authorized deviation is indicated by the addition of "(DEVIATION)" after the date of the regulation.

SECTION M - EVALUATION FACTORS FOR AWARD

Evaluation Criteria

A. Technical

Technical proposals will be evaluated on the following criteria listed in order of descending importance:

1. Offeror's demonstration of competence to perform the work required by the RFP.

- a. Demonstrated technical competence of the proposed Principal Investigator and research team in designing, testing and evaluating traffic barriers and work zone appurtenances. Demonstrated understanding of MUTCD requirements.
- b. Experience and background of the research team in preparing CAD drawings, and in conducting full-scale tests of traffic barriers with automobiles and pickup trucks.

2. Offeror's indication of sufficient resources to complete the contract requirements satisfactorily and on schedule.
 - a. Adequacy and availability of all test facilities, equipment, and instrumentation required to safely conduct full-scale tests of traffic barriers and other work zone appurtenances with automobiles and pickup trucks at speeds up to 100 km/h (63 mph).
3. Offeror's responsiveness to the technical requirements of the RFP
 - a. Completeness, thoroughness, and adequacy of the offeror's work plan and technical approach in responding to each of the tasks set forth in the Statement of Work.
 - b. Work proposed is consistent with the requirements and scope of the Statement of Work.

B. Cost

In addition to the criteria listed above, relative cost will be considered in the ultimate award decision. Cost/price proposals will be analyzed to assess realism and probable cost to the Government. The proposed costs may be adjusted, for the purpose of evaluation, based upon the results of the cost realism assessment.

C. Past Performance

Past performance will be reviewed to assure that the offeror has relevant and successful experience and will be considered in the ultimate award decision. Past performance will not be scored.

D. Basis for Award

The Government will accept the offer that is considered the most advantageous to the Government. Of the three factors, (A) technical, (B) cost, and (C) past performance, technical is considered the most important. For selection purposes, past performance is of less importance than technical or cost.

**FORMAT
for
MONTHLY PROGRESS REPORTS**

A. Accomplishments/Significant Findings by Task this Month:

B. Work Planned for Next Month by Task:

C. Effort Expended by Key Personnel:

Effort (Staff-Hours)

<u>Employee Name</u>	<u>Contract Time</u> <u>Allocated</u>	<u>Cumulative</u> <u>Last Month</u>	<u>Cumulative</u> <u>This Month</u>
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Princ. Investigator:

Other Key People:

D. ADP Usage:

Usage

<u>Item</u>	<u>Cost</u> <u>Allocated</u>	<u>Cumulative Cost</u> <u>Last Month</u>	<u>Time Used</u> <u>This Month</u>	<u>Cost</u> <u>This Month</u>	<u>Cum. Cost</u> <u>This Month</u>
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Labor:

Equipment:

E. Research Costs:

F. Identification of Problems/Recommended Solutions:

Sample Format

RFP No. DTFH61-97-R-00046

Title: "Work Zone Appurtenances Tested to NCHRP 350"

Proposal Submitted by: _____

Staffing Assignments/Task Breakdown

Name of Principal ^{1/} Role in Study

<u>TASKS</u>	<u>STAFF MEMBERS</u>	<u>STAFF-MONTHS</u>	<u>TOTAL</u>

NOTE: All times shall be given in staff-months

1/ Biographies of each member shall be included in the staffing proposal.

**SAMPLE FORMAT
PRICE PROPOSAL BUDGET SUMMARY**

I. DIRECT LABOR

{List each proposed individual or labor category (insert additional lines if needed). Indicate if escalation is included and how it is applied.}

<i>Staffing</i>	<i>Estimated Hours</i>	<i>Hourly Rate</i>	<i>Estimated Cost</i>
Total Direct Labor			

II. LABOR OVERHEAD

Overhead Rate:

Estimated Cost:

III. SUBCONTRACTOR

Direct Labor:

<i>Staffing</i>	<i>Estimated Hours</i>	<i>Hourly Rate</i>	<i>Estimated Cost</i>
Total Direct Labor			

Overhead Rate:

Other Direct Costs:

Travel:

G&A Rate:

Fee:

Total Estimated Cost:

IV. TRAVEL

Total Estimated Cost:

V. OTHER DIRECT COSTS

Total Estimated Cost:

VI. GENERAL & ADMINISTRATIVE (G&A) EXPENSE

G&A Rate:

Estimated Cost:

VII. TOTAL ESTIMATED COST :

\$ _____

VIII. TOTAL FIXED FEE :

\$ _____

IX. TOTAL ESTIMATED COST AND FEE :

\$ _____

FHWA ADP Information and Requirements

Required FHWA ADP Information

(Complete the attached ADP Equipment and Services Form DOT F4220.21.)

All specifications for the acquisition or use of ADP equipment shall be submitted with Part III of the offeror's proposal.

A. Contracts for Mainframe/Minicomputer Systems or Software

- Any computer programs developed or modified for FHWA as a result of this project must be deliverable items to FHWA and written in either ANSI FORTRAN or Federal Standard COBOL. Exceptions to the use of these standard languages are permissible where other languages offer clear advantages. Such exceptions should be approved by the Contracting Officer's Technical Representative and the Chief of Data Systems Division.
- Any computer programs that are deliverable items to FHWA must be independent of any proprietary software packages.
- All computer systems/programs must be documented according to Federal Information Processing Standards Publication (FIPS PUB) #38, "Guidelines for Documentation of Computer Programs and Automated Data Systems," FIPS PUB #64, "Guidelines for Documentation of Computer Programs and Automated Data Systems for the Initiation Phase," and FHWA Documentation Guidelines as specified in Chapter VII of the FHWA IRM Manual (copy attached).
- All data and programs must be compatible with DOT's computer systems, AMDAHL 580, or compatible with a computer system at a facility agreed upon by the FHWA and the contractor.
- To facilitate complete evaluation on the part of FHWA, a complete documentation package, i.e., source programs, job control language set-ups, test data, systems and programming documentation as well as operations and users manuals, must be submitted to the Contracting Officer's Technical Representative (COTR) for final review and acceptance. The programs developed must be tested and debugged by the contractor for successful operation before submission.
- The programs must be acceptance tested on the DOT's computer system or on a computer system at an agreed upon facility prior to acceptance by the COTR. That is, the contractor must demonstrate that these programs can be successfully compiled and executed, using test data. The results of this test will be validated and reviewed for acceptance by the COTR.

B. Contracts for Microcomputer Systems

- Any computer programs developed or modified for FHWA as a result of this project must be deliverable items to FHWA.

- If it is necessary to utilize a proprietary software package in this project, this package must be readily available off-the-shelf and must run on MS/DOS machines without any hardware or software modifications.
- All computer systems/programs must be documented according to applicable FIPS PUBS and the Documentation Guidelines contained in Chapter VII of the FHWA IRM Manual.
- Any programs developed must be acceptance tested on an FHWA microcomputer. The results of this test will be validated and reviewed for acceptance by the COTR.

C. **All ADP Systems or Software Contracts**

- All data collected for FHWA as a result of this project must be deliverable items to FHWA.
- Punched cards must conform to the standards as specified in FIPS PUBS # 1, 13, 14, and 15, "Code for Information Interchange," "Rectangular Holes in Twelve Row Punched Cards," "Hollerith Punched Card Code," and "Subsets of the Standard Code for Information Interchange," respectively.
- Magnetic tapes must conform to the standards as specified in FIPS PUBS # 3 and 25, "Recorded Magnetic Tape for Information Interchange."
- Analog data reported on magnetic tape shall either be capable of being converted on FHWA's A/D conversion system or shall be converted to 9-track digital magnetic tape or punched cards in accordance with the previously mentioned FIPS PUBS.
- **NOTE:** The Federal Technical Information Service Publications, FIPS PUBS, are incorporated by reference and may be obtained upon request from the address listed below:

National Technical Information Service
5285 Port Royal Road
Springfield, Virginia 22161
Telephone Number: (703) 487-4650

ADP EQUIPMENT AND SERVICES

Instructions: This form shall be completed in addition to the SF-1411 or SF-1448. If any equipment is to be purchased, please enter a check in the corresponding far right column. Inclusive dates during which any item is required shall be entered in the corresponding section heading. All overheads must be included and identified as a separate line item in each section (I - VI)

I) SYSTEMS ANALYSIS AND PROGRAMMING

DATES REQUIRED

FROM _____ TO _____

LANGUAGE: FED STD COBOL ☐ ANSI FORTRAN ☐ OTHER _____

LABOR (SYS ANAL, PROGR, CODERS, ETC.)	HOURS	RATE/HR	COST

TOTAL SYSTEMS ANALYSIS AND PROGRAMMING COST

II) CENTRAL PROCESSOR REQUIREMENTS

DATES REQUIRED

FROM _____ TO _____

MAKE & MODEL	LOCATION	*MEMORY REQUIRED	TURN-AR TIME	CPU HOURS	RATE/CPU HR	COST	CHK

TOTAL CENTRAL PROCESSING COST

III) PERIPHERAL REQUIREMENTS (INCL. STORAGE MEDIA)

DATES REQUIRED

FROM _____ TO _____

TYPE AND MODEL	QTY	RATE	COST	CHK

TOTAL PERIPHERAL REQUIREMENTS COST

IV) TERMINALS AND COMMUNICATIONS

DATES REQUIRED

FROM _____ TO _____

MAKE & MODEL	LOCATION	LINES	MODEM	CONNECT TIME (HOURS)	COST	CHK

TOTAL TERMINALS AND COMMUNICATIONS COSTS

V) DATA PREPARATION

DATES REQUIRED

FROM _____ TO _____

TYPE (KEYPUNCH, KEY-TAPE, KEY-DISK, ETC.)	HOURS	RATE/HR	RECORDS	RATE/REC	COST

TOTAL DATA PREPARATION COST

Vi) RELATED SPECIAL PURPOSE ADP EQUIPMENT
AND SERVICES

DATES REQUIRED

FROM _____ TO _____

TYPE (SPECIAL SOFTWARE, HARDWARE, ETC.)	QTY	RATE	COST	CHK

TOTAL SPECIAL PURPOSE ADP COST

TOTAL COST FOR ADP EQUIPMENT AND SERVICES	
--	--

* This is the maximum main memory required for problem programs excluding the Operating System.

CHAPTER VII FHWA IRM MANUAL

DOCUMENTATION
FOR
MICROCOMPUTER APPLICATIONS
AND INFORMATION SYSTEM

**DOCUMENTATION GUIDELINES
FOR MICROCOMPUTER APPLICATIONS
AND INFORMATION SYSTEM**

Two types of documentation are required to document microcomputer applications and information systems: a Users Guide and a System Maintenance Manual. The basic purpose of a Users Guide is to provide enough information to permit use of a system by someone unfamiliar with it. The purpose of a System Maintenance Manual is to provide sufficient information to allow a programmer to correct any problems that arise and to permit the program to be maintained and updated as necessary. The following guidelines for preparing the Users Guide and System Maintenance Manual are geared to large, complex, microcomputer systems that have many users. For simpler systems with one or only a few users, it is sufficient to provide enough documentation to meet the basic purpose of a user guide or system maintenance manual.

There is an additional quick and easy way to augment the documentation provided in the Users Guide and the System Maintenance Manual: by using comments in the source or program code. This addition to other documentation can be especially helpful when added to the more limited documentation provided for simpler applications.

A. USERS GUIDE

The information in the Users Guide is presented in four sections:

- Section 1 Introduces the Users Guide and provides system background.
- Section 2 Provides a general description of the application.
- Section 3 Contains step-by-step operating procedures.
- Section 4 Describes each output report and provides a sample of each.

Each of these four sections is described in more detail below.

NOTE: Data that are too numerous or too detailed to be presented in figures or in narrative texts should be incorporated into appendices and referenced in the relevant paragraphs of the text.

1. **INTRODUCTION**. The introductory section of the Users Guide should include the following:

- a. **Purpose of the Users Guide**. Use the following paragraph, modified as necessary, to describe the purpose and format of the Users Guide:

The purpose of the Users Guide for (Project Name, Name of Application, responsible organization, and location) is (1) to describe the system so that potential users can determine its applicability, and, (2) to provide users with all the information necessary to operate and use the system efficiently and effectively.

- b. **Background Information**. This paragraph summarizes the relevant aspects of the history and development of the system or application, describing briefly:

- (1) The basis for the system (e.g., policy, directive of management, IRM improvement project)
- (2) The general nature and intended users of the system or application (e.g., program management, technical application, administrative application, or utility/other), and when it would be appropriate to use the application.
- (3) System owner (indicate the organization responsible for the system).
- (4) Standards used in system development, such as hardware, software, telecommunications, etc.
- (5) Previously published documentation on this or a related application.

- c. **Terms and Abbreviations**. This Users Guide should be written in non-technical language for use by non-ADP personnel. An appendix to the Users Guide should define the technical terms, abbreviations, and acronyms used. However, data element names and data codes should not be included in the list of terms and abbreviations. Instead, include them in Section 2.f. (see below).
 - d. **Security**. Discuss fully all security considerations, including provisions for applying the Privacy Act. Describe any measures provided by the system to protect the database, such as User IDs, and the security responsibilities imposed on the users. Also discuss any measures for limiting entry to the system and access to the database.
2. **DESCRIPTION OF THE APPLICATION**. The second section of the Users Guide should provide the following:
- a. **Description**. Furnish a brief description of the objectives, capabilities, and any special features or benefits of the system or application.
 - b. **Functions**. Provide a narrative description of the functions performed by the system. Include a chart showing the data flow through the system and the relationships of the operating functions to the organizations that are the sources of the data input and recipients of information outputs.
 - c. **System Configuration**. List or describe the hardware, software, and communications environment required by the system, including any relevant options.
 - d. **System Organization**. Provide a general overview of the logical parts into which the system is divided, and the role of each part in the total system process. System may be divided into processing modules or subsystems, or, in the case of systems developed using a commercial data base management software such as dBASE III+, they may be organized according to pre-packaged programs or standard data base files. In these cases also describe the substructure.
 - e. **Performance**. Briefly describe the overall performance capabilities and limitations of the system and the quality assurance factors incorporated to protect the integrity of the system software and data. Where appropriate include:
 - (1) Quantitative information on inputs, outputs, response time, processing times, data limitations and error rates.
 - (2) Qualitative information about flexibility and reliability.
 - f. **Data Base**. Describe the data files in the database that are referenced, supported, or kept current by the software. Describe each data element in a data element dictionary and relate the data element to the file(s) in which it is used. This information may be presented in a figure(s) or in an appendix, or, for simple systems, within the narrative text.

g. **General Description of System Inputs and Outputs**.

- (1) **Inputs**. Briefly describe the media and procedures used for entering data into the system. Describe any user source documents. Provide samples of source documents and the function (menu or prompt) screens used for data entry in appendices and reference them in the text.
- (2) **Outputs**. Briefly describe the type of outputs produced by the system. Reference the reports provided in conjunction with Section 4, Output Reports, below. Also reference any display screen outputs that are included in an appendix.

3. **SYSTEM OPERATION**

Provide step-by-step instructions to permit the user to operate the system and generate outputs. The structure of this section may vary, but it should start with a paragraph on start up procedures and conclude with a paragraph on exiting the system. In between, step-by-step instructions should be provided for each different procedure.

If the operating procedures are too complex to be presented in the narrative text, or if the system contains more than one processing module or subsystem, then the procedures should be placed in an appendix, with appropriate references in the text. Also, refer to appendices containing sample input and output screens, or any other data pertinent to the operation of the system.

These instructions should be as simple as possible. They should be test by having at least one and preferably more employees who are not familiar with the application sit down with the draft instructions and try to run the program without additional instruction.

4. **OUTPUT REPORTS**

Prepare a narrative description of each output report available to the user. Include all the information necessary for the user, including the purpose, distribution, security, and use of each report. Provide samples of each report in an appendix referenced in this section. If only a few reports are involved, the samples may be included in this section.

B. SYSTEM MAINTENANCE MANUAL

The information in the System Maintenance Manual is presented in three sections:

Section 1 Introduces the manual and provides background information on the system.

Section 2 Describes the environment in which the system operates.

Section 3 Describes program and data characteristics in detail and lists the systems programs.

NOTE: Data that are too extensive or too detailed to be presented in figures or in narrative are incorporated in appendices and referenced in the text.

1. **INTRODUCTION**. The introductory section of the System Maintenance Manual should include the following:
 - a. **Purpose of the System Maintenance Manual**. Use the following paragraph, modified as appropriate, to describe the purpose of the System Maintenance Manual:

The System Maintenance Manual for (project name, name of developing organization), provides programmers with the information necessary to maintain the system efficiently and effectively.
 - b. **Project Description and References**. Briefly describe the system including its objectives and uses. Specify the general nature of the application, i.e., program management, technical application, administrative application, or utility/other. Indicate the organization responsible for the system, the projected user(s), and when it would be appropriate to use the application.

Summarize the relevant aspects of the history and development of the application. Attach the following documents or list them showing the author or source, reference number, title, date, point of contact, and security classification (if any):

 - (1) Users Guide.
 - (2) Project request and other pertinent documentation on the project.
 - (3) Standards used in system development, such as hardware, software, telecommunications, etc.

- c. **Terms and Abbreviations**. The System Maintenance Manual may be written in standard ADP technical language. List and define terms unique to the system, as well as more general ADP terms that may be subject to interpretation. Include abbreviations and acronyms in an appendix and reference it in the text. Do not include data element names and data codes in this list; instead include them in Section 3.b, data descriptions.

2. **SYSTEM DESCRIPTION**

- a. **System Application**. Describe the objectives and organization of the system and the functions performed. Provide a flowchart(s) showing the interrelationships of the major components of the system.
- b. **System Environment**. Describe the system hardware characteristics and the software used to support the system.
- c. **Communications**. Describe any communication facilities necessary or available to operate or interface with the system.
- d. **Interfaces**. Briefly describe any existing or potential hardware or software interfaces with other equipment.
- e. **Security**. Discuss the security measures instituted to protect system software and data.

3. **PROGRAM AND DATA DESCRIPTIONS**

- a. **Program Descriptions**. Supply all the details and characteristics of each program and subroutine or equivalent needed by the programmer in order to maintain the system. Identify (by title, tag, and version number), list, and described each program. Include all appropriate information on program functions, inputs and outputs, operations performed, error conditions, and interfaces with other systems, programs, and/or subroutines. Provide program listings of each program and subroutine or the equivalent file listings in an appendix and reference them in the text.
- b. **Data Description**. Provide a complete description of the system's database(s), including the database structure and the components of each data element/field in the database. Indicate storage requirements and limitations. Present record descriptions in a data element dictionary or on record content sheets in an appendix and reference them in the text.

DISCLOSURE OF LOBBYING ACTIVITIES

Complete this form to disclose lobbying activities pursuant to 31 U.S.C. 1352

(See reverse for public burden disclosure)

1. Type of Federal Action: <input type="checkbox"/> a. contract <input type="checkbox"/> b. grant <input type="checkbox"/> c. cooperative agreement <input type="checkbox"/> d. loan <input type="checkbox"/> e. loan guarantee <input type="checkbox"/> f. loan insurance		2. Status of Federal Action: <input type="checkbox"/> a. bid /offer/application <input type="checkbox"/> b. initial award <input type="checkbox"/> c. post award		3. Report Type: <input type="checkbox"/> a. initial filing <input type="checkbox"/> b. material change For Material Change Only: year _____ quarter _____ date of last report _____	
4. Name and Address of Reporting Entry: <input type="checkbox"/> Prime <input type="checkbox"/> Subawardee Tier _____, if known: Congressional District, if known:			5. If Reporting Entry in No. 4 is Subawardee, Enter Name and Address of Prime: Congressional District, if known:		
6. Federal Department/Agency:			7. Federal Program Name/Description: CFDA Number, if applicable: _____		
8. Federal Action Number, if known:			9. Award Amount, if known: \$		
10. a. Name and Address of Lobbying Entity (if individual, last name, first name, MI): (attach Continuation Sheet(s) SF-LLL-A, if necessary)			b. Individuals Performing Services (including address if different from No. 10a) (last name, first name, MI): (attach Continuation Sheet(s) SF-LLL-A, if necessary)		
11. Amount of Payment (check all that apply): \$ _____ <input type="checkbox"/> actual <input type="checkbox"/> planned			13. Type of Payment (check all that apply): <input type="checkbox"/> a. retainer <input type="checkbox"/> b. one-time fee <input type="checkbox"/> c. commission <input type="checkbox"/> d. contingent fee <input type="checkbox"/> e. deferred <input type="checkbox"/> f. other; specify: _____		
12. Form of Payment (check all that apply): <input type="checkbox"/> a. cash <input type="checkbox"/> b. in-kind; specify: nature _____ value _____					
14. Brief Description of Services Performed or to be Performed and Date(s) of Service, including officer(s), employee(s) or Member(s) contacted, for Payment Indicate in Item 11: (attach Continuation Sheet(s) SF-LLL-A, if necessary)					
15. Continuation Sheet(s) SF-LLL-A attached: <input type="checkbox"/> Yes <input type="checkbox"/> No					
16. Information requested through this form is authorized by Title 31 U.S.C. Section 1352. This disclosure of lobbying activities is a material representation of fact upon which reliance was placed by the tier above when this transaction was made or entered into. This disclosure is required pursuant to 31 U.S.C. 1352. This information will be reported to the Congress semi-annually and will be available for public inspection. Any person who fails to file the required disclosure shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.			Signature: _____ Print Name: _____ Title: _____ Telephone No.: _____ Date: _____		
Federal Use Only:			Authorized for Local Reproduction Standard Form-LLL		

DISCLOSURE OF LOBBYING ACTIVITIES
CONTINUATION SHEET

Reporting Entity:

INSTRUCTIONS FOR COMPLETION OF SF-LLL, DISCLOSURE OF LOBBYING ACTIVITIES

This disclosure form shall be completed by the reporting entity, whether subawardee or prime Federal recipient at the initiation or receipt of a covered Federal action, or a material change to a previous filing, pursuant to title 31 U.S.C. section 1352. The filing of a form is required for each payment or agreement to make payment to any lobbying entity for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with a covered Federal action. Use the SF-LLL-A Continuation Sheet for additional information if the space on the form is inadequate. Complete all items that apply for both the initial filing and material change report. Refer to the implementing guidance published by the Office of Management and Budget for additional information.

1. Identify the type of covered Federal action for which lobbying activity is and/or has been secured to influence the outcome of a covered Federal action.
2. Identify the status of the covered Federal action.
3. Identify the appropriate classification of this report. If this is a followup report caused by a material change to the information previously reported, enter the year and quarter in which the change occurred. Enter the date of the last previously submitted report by this reporting entity for this covered Federal action.
4. Enter the full name, address, city, state and zip code of the reporting entity. Include Congressional District, if known. Check the appropriate classification of the reporting entity that designates if it is, or expects to be, a prime or subaward recipient. Identify the tier of the subawardee, e.g., the first subawardee of the prime is the 1st tier. Subawards include but are not limited to subcontracts, subgrants and contract awards under grants.
5. If the organization filing the report in item 4 checks "Subawardee" then enter the full name, address, city, state and zip code of the prime Federal recipient. Include Congressional District, if known.
6. Enter the name of the Federal agency making the award or loan commitment. Include at least one organizational level below agency name, if known. For example, Department of Transportation, United States Coast Guard.
7. Enter the Federal program name or description for the covered Federal action (item 1). If known, enter the full Catalog of Federal Domestic Assistance (CFDA) number for grants, cooperative agreements, loans and loan commitments.
8. Enter the most appropriate Federal identifying number available for the Federal action identified in item 1 (e.g., Request for Proposal (RFP) number; Invitation for Bid (IFB) number; grant announcement number; the contract, grant, or loan award number; the application/proposal control number assigned by the Federal agency). Include prefixes, e.g., "RFP-DE-90-001."
9. For a covered Federal action where there has been an award or loan commitment by the Federal agency, enter the Federal amount of the award/loan commitment for the prime entity identified in items 4 or 5.
10. (a) Enter the full name, address, city, state and zip code of the lobbying entity engaged by the reporting entity identified in item 4 to influence the covered Federal action.
(b) Enter the full names of the individual(s) performing services, and include full address if different from 10 (a). Enter Last Name, First Name, and Middle Initial (MI).
11. Enter the amount of compensation paid or reasonably expected to be paid by the reporting entity (item 4) to the lobbying entity (item 10). Indicate whether the payment has been made (actual) or will be made (planned). Check all boxes that apply. If this is a material change report, enter the cumulative amount of payment made or planned to be made.
12. Check the appropriate box(es). Check all boxes that apply. If payment is made through an in-kind contribution, specify the nature and value of the in-kind payment.
13. Check the appropriate box(es). Check all boxes that apply. If other, specify nature.
14. Provide a specific and detailed description of the services that the lobbyist has performed, or will be expected to perform, and the date(s) of any services rendered. Include all preparatory and related activity, not just time spent in actual contact with Federal officials. Identify the Federal official(s) or employee(s) contacted or the officer(s), employee(s), or Member(s) of Congress that were contacted.
15. Check whether or not a SF-LLL-A Continuation Sheet(s) is attached.
16. The certifying official that sign and date the form, print his/her name, title, and telephone number.

Public reporting burden for this collection of information is estimated to average 30 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Office of Management and Budget, Paperwork Reduction Project (0348-0046), Washington, DC 20503.

OF-17 (12/93)
Offer Label

FAR (48) CFR 53.214(g)
FAR (48) CFR 53.215-1(h)

NOTICE TO OFFEROR

1. THIS LABEL MAY ONLY BE USED ON ENVELOPES LARGER THAN 156 mm (6 1/8 INCHES) IN HEIGHT AND 292 mm (11½ INCHES) IN LENGTH.
2. Print or type your name and address in the UPPER left corner of the envelope containing your offer.
3. Complete the bottom portion of this form and paste it on the LOWER left corner of the envelope, unless the envelope is 156 mm by 292 mm (6 1/8 inches by 11½ inches) or smaller.

OFFER

SOLICITATION NO.
DATE FOR RECEIPT OF OFFERS
TIME FOR RECEIPT OF OFFERS AM PM
OFFICE DESIGNATED TO RECEIVE OFFERS

*GPO:1994-367-191

PRIORITY LIST FOR SPR POOLED FUND STUDY NO. 2-188
“CRASH TESTED SAFETY APPURTENANCES FOR _WORK ZONES”

<u>RANK</u>	<u>DESCRIPTION</u>
1.	Type III barricade with 48-inch sign mounted at 7-feet, meets wind load, TL-3.
2.	N.J. PVC pipe barricade with signs, TL-3.
3.	Non-proprietary sign support, skid mount, 48”x 48” wood, 7-foot mounting height.
4.	Type II and Type III L-channel barricades.
5.	New York I-beam connection for PCB, pinned at ends of barrier run, T.L.-3.
6.	Lateral stiffener for PCB joints, T.L.-3, NJ shape, W-beam on back.
7.	Portable sign assembly, tubular steel, with 9 square inch cross-setting, 5 foot mounting height.
8.	Transition from NJ temporary barrier to NJ bridge end, Thrie beam end shoes.
9.	F-shape barrier pinned to roadway, Oregon design.
10.	Portable sign supports, different mounting heights 1-3-5 ft, resist wind without creeping.
11.	Crash test simulate concrete barrier at various speeds and angles, pinned, back plate.
12.	Retrofit for PCB, develop (pin & loop) strength for barrier, T.L.-2.
13.	PCB deck attachment, bolted with clip.
14.	Simulation study for plastic glare screen on PCB.
15.	Vertical panels, angle iron with sand bags.
16.	Generic attenuator used on ends of barriers.
17.	PCB with concrete glare screen, F-shape, 52 inch glare screen, pin & loop, thicker, free standing.
18.	Steel plate transition from permanent PCB to temporary PCB.
19.	Core-outs for pavements.
20.	Drop-offs, trenches.
21.	Crash test temporary concrete barrier in shortened sections.
22.	Simulate temporary barriers with shortened sections.
23.	Develop a conceptual design of a crash worthy arrow board (do not crash test it).
24.	Simulate earth berm end treatment.
25.	Plastic curb section.
26.	Asphalt curb section.

REFERENCES

1. Part VI of the Manual on Uniform Traffic Control Devices (MUTCD), entitled, "Standards and Guides for Traffic Controls for Street and Highway Construction, Maintenance, Utility and Incident Management Operations", 1988 Edition of MUTCD, Revision 3, September 3, 1993.

Available from: U.S. Government Printing Office
Superintendent of Documents
Mail Stop: SSOP
Washington, D.C. 20402-9328
ISBN No. 0-16-043015-1

2. Ross, Hayes .E. Jr. et. al., "Recommended Procedures for the Safety Performance Evaluation of Highway Appurtenances," NCHRP Report No. 350, March 1993.

Available from: Transportation Research Board
National Academy of Sciences
2101 Constitution Avenue, N.W.
Washington, D. C. 20418
(202) 334-3214

3. "Research and Development - Quick Reference Guide", Report Number FHWA-RD-95-057, June 1995.

Available from: Research and Technology Report Center
9701 Philadelphia Court, Suite Q
Lanham, Maryland 20706
(301) 577-0818

SUMMARY OF SUPPLEMENTARY EVALUATION FACTORS

PASSENGER COMPARTMENT INTRUSION

1. Windshield Intrusion
 - a. No windshield contact
 - b. Windshield contact, no damage
 - c. Windshield contact, no intrusion
 - d. Device embedded in windshield, no significant intrusion
 - e. Partial intrusion into passenger compartment
 - f. Complete intrusion into passenger compartment
2. Body Panel Intrusion (yes or no)

LOSS OF VEHICLE CONTROL

1. Physical loss of control
2. Loss of windshield visibility
3. Perceived threat to other vehicles from debris
4. Debris on pavement

PHYSICAL THREAT TO WORKERS OR OTHER VEHICLES

1. Harmful debris that could injure workers (yes or no)
2. Harmful debris that could injure workers in other vehicles (yes or no)
If yes, record the size and approximate mass of the debris, the approximate speed (high or low) and the approximate trajectory (height, direction etc.) of the potentially harmful debris.

VEHICLE AND DEVICE CONDITION

1. Vehicle Damage
 - a. None
 - b. Minor scrapes, scratches or dents
 - c. Significant cosmetic dents
 - d. Major dents to grill and body panels
 - e. Major structural damage
2. Windshield Damage
 - a. None
 - b. Minor chip or crack
 - c. Broken, no interference with visibility
 - d. Broken and shattered, visibility restricted but remained intact
 - e. Shattered, remained intact but partially dislodged
 - f. Large portion removed
 - g. Completely removed

3. Device Damage
 - a. None
 - b. Superficial
 - c. Substantial, but can be straightened
 - d. Substantial, replacement parts needed for repair
 - e. Cannot be repaired